

Benicia Arsenal Powder Magazine No. 5  
(Building No. 14)  
NE of I-680  
Benicia  
Solano County  
California

HABS No. CA-1839

HABS,  
CAL,  
48-BENI,  
4-0-

PHOTOGRAPHS

HISTORICAL AND DESCRIPTIVE DATA

ADDED  
FOOTNOTES



United States Department of the Interior  
Heritage Conservation and Recreation Service  
Washington, DC 20243

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NATIONAL ARCHITECTURAL AND ENGINEERING RECORD  
HISTORIC AMERICAN BUILDINGS SURVEY

ARCHITECTURAL DATA FORM

STATE California	COUNTY Solano	TOWN OR VICINITY Benicia
HISTORIC NAME OF STRUCTURE (INCLUDE SOURCE FOR NAME) Benicia Arsenal Powder Magazine No. 5		HABS NO. CA-1839
SECONDARY OR COMMON NAMES OF STRUCTURE Building No. 14		
COMPLETE ADDRESS (DESCRIBE LOCATION FOR RURAL SITES) Northeast of I-680; owned by Benicia-Martinez Toll Bridge Authority		
DATE OF CONSTRUCTION (INCLUDE SOURCE) 1903 (per datestone)	ARCHITECT(S) (INCLUDE SOURCE) not known	
SIGNIFICANCE (ARCHITECTURAL AND HISTORICAL, INCLUDE ORIGINAL USE OF STRUCTURE) Part of post-Spanish-American War spurt in building, this powder magazine was part of a pair (see CA-1839-1). Building #13 (Powder Magazine No. 4) was demolished for a freeway intersection.		
STYLE (IF APPROPRIATE)		
MATERIAL OF CONSTRUCTION (INCLUDE STRUCTURAL SYSTEMS) Brick		
SHAPE AND DIMENSIONS OF STRUCTURE (SKETCHED FLOOR PLANS ON SEPARATE PAGES ARE ACCEPTABLE) Four bays long		
EXTERIOR FEATURES OF NOTE Gable roof, pilastered brick walls with corbeling		
INTERIOR FEATURES OF NOTE (DESCRIBE FLOOR PLANS, IF NOT SKETCHED)		
MAJOR ALTERATIONS AND ADDITIONS WITH DATES		
PRESENT CONDITION AND USE		
OTHER INFORMATION AS APPROPRIATE The Benicia project was undertaken by HABS in the summer of 1976 in cooperation with Exxon Company, USA, and the Benicia Historical Society. The project supervisor was John P. White and the project historian was Robert Brueggemann.		
SOURCES OF INFORMATION (INCLUDE LISTING ON NATIONAL REGISTER, STATE REGISTERS, ETC.) Two photos (HABS No. CA-1839-1 and -2), one from the San Francisco Examiner Library and one from Benicia Arsenal, were photocopied for HABS in the 1950s.		

HABS No. CA-1839

Addendum to  
Benicia Arsenal, Powder Magazine Number 5 (Building No. 14)  
Benicia-Martinez Bridge Maintenance Yard  
Junction of Interstate Highways 680 and 780  
Benicia  
Solano County  
California

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CAL.

48-BENI

4-0-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey  
National Park Service, Western Region  
Department of the Interior  
San Francisco, California 94102

Addendum to 1 data page previously transmitted to the Library of Congress.

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HISTORIC AMERICAN BUILDINGS SURVEY

BENICIA ARSENAL, POWDER MAGAZINE NUMBER 5 (BUILDING NO. 14)  
HABS No. CA-1839  
(page 2)

**Location:** Benicia-Martinez Bridge Maintenance Yard, east side of Interstate Highway 680 at the junction of Interstate Highways 680 and 780, Benicia, Solano County, California.

USGS Benicia, Calif. Quadrangle (7.5'),  
Universal Transverse Mercator Coordinates:  
10.576480.4211490

**Present Owner:** California Department of Transportation  
1120 N Street  
Sacramento CA 95814

**Present Occupant:** California Department of Transportation  
Operations and Toll Bridges

**Present Use:** Demolished, August 25, 1986

**Significance:** The Benicia Arsenal Powder Magazine was one of two such outlying buildings erected in 1903. The Benicia Arsenal is a National Register historic district and a California State Historic Landmark. This building was determined to lie outside the boundaries of both Landmarks and not to be individually eligible for inclusion in the National Register. Nonetheless, the California Department of Transportation and the California State Historic Preservation Officer agreed that the building should be recorded prior to its demolition for its associative values, so that there would be a record of its existence entered with the HABS records for the Benicia Arsenal.

PART I. HISTORICAL INFORMATION

The Benicia Arsenal Powder Magazine, Arsenal Building No. 14, was one of two identical magazines erected in 1903. The period between the conclusion of the Spanish-American War in 1898 and the end of World War I was one of inactivity at the Benicia Arsenal. Besides the two aforementioned powder magazines, the Arsenal added a stable in 1908 and a storage building in 1911. All were built to standardized plans and do not compare well architecturally to the Arsenal's earlier buildings. The plans for Buildings No. 13 and 14 are dated October 10, 1902, and were prepared at the Frankford Arsenal.

In 1928, the Southern Pacific Railroad built its Martinez-Benicia Bridge, a final link in the transcontinental railroad. This necessitated a realignment of its main line tracks, which had previously skirted the shore of the Carquinez Straits to reach the station in Benicia, where entire trains were loaded onto the world's largest train ferries for the crossing to Port Costa. The realignment to provide the northern bridge approach required a deep cut in the hillside immediately below Arsenal Building No. 14; this cut was to lead eventually to the building's demise.

In the early 1960s, the California Division of Highways (now the California Department of Transportation, or Caltrans) acquired both of the 1903 powder magazines in the course of constructing Interstate Highway 680, which crosses the Carquinez Straits on a bridge adjacent to the Southern Pacific's railroad bridge. Building No. 13 lay directly in the path of the freeway, and was demolished at that time. The State built its maintenance yard for the Benicia-Martinez Toll Bridge around Building No. 14, and adaptively re-used the old powder magazine for storage of highway and bridge maintenance materials.

By 1978, structural failure of the building, caused by slippage in the adjacent railroad cut, had advanced to the point that it was determined to be unsafe. Caltrans vacated the building and conducted soils and structural tests to determine the feasibility of stabilization. The tests revealed, however, the instability of underlying soils and rock strata; the existence of the railroad cut which had caused the problem also precluded any method to alleviate the problem. Caltrans concluded to demolish the building.

PART II. ARCHITECTURAL INFORMATION

The Benicia Arsenal Powder Magazine, Arsenal Building No. 14, was stylistically a very restrained example of the Classical Revival. With its axis running northwest-southeast, it was of brick masonry construction, with the bricks laid up in an odd bond arrangement: every five courses of stretchers laid up in running bond were separated by a single course laid up in alternating stretchers and headers. (This appears to have been a less than ideal method, since it resulted in a near stacking of vertical mortar joints.) The mortar used was very hard, indicating a high Portland cement content, not unexpected given the building date. The one-story building, rectangular in plan and measuring 106 feet 4 inches by 39 feet 4 inches, rested atop a two-foot thick Benicia sandstone foundation, laid up in random ashlar and situated on concrete footings; the foundation was capped by a sandstone belt course.

The building's gable roof was clad in corrugated galvanized iron. A series of four thirty-inch ventilators placed along the ridge of the roof provided ventilation for the four interior rooms. Five lightning rods along the ridge line provided protection from lightning strikes.

The four bays of the building were delineated by shallow brick pilasters, while pilasters divided the ends of the building into three narrow bays. Within each bay, the wall plane was corbelled out at the top to the plane of the pilasters, in effect forming a brick entablature spanning between the pilaster. A second corbel table rose from the plane of the entablature to support the eaves, with a brick dentil course running just beneath the eaves, topped off by a terra cotta cornice. This latter corbel table was carried around the corners of the building on the horizontal, simultaneously forming capitals for the end pilasters as well as short gable returns. A sandstone tablet bearing the date "1903" was placed in the center bay of the northwest end of the building, on the line of the gable returns.

A six foot, 4 inch wide loading dock ran along the length of the southwest side of the building, and consisted of a five-inch thick concrete platform carried on a sandstone foundation. Each of the four rooms was served by an outside fireproof sliding door and an inside-hung sliding wood door opening onto the loading dock. Along the northeast side of the structure, a single 6/6 double-hung window illuminated each of the four rooms; these windows were protected by metal-lined fireproof shutters.

Each of the four rooms measured 25 by 36 feet, and was designed to store 750 boxes of powder. All exterior walls had hollow brick lining. The floor consisted of 1-1/8 inch maple boards

carried on 3x3-1/2 inch chestnut joists (called sleepers on the plans). The roof system was carried by longitudinal I-beams, and the ceiling was of sheet copper fastened over 1-1/8 inch yellow pine sheathing with 3x4 inch yellow pine nailing strips.

### PART III. SOURCES OF INFORMATION

Plans, "Benicia Arsenal, Powder Magazine, Cap. 300,000 Lbs," Frankford Arsenal, October 10, 1902. Blueprint held by California Department of Transportation, Division of Operations and Toll Bridges, Benicia-Martinez Bridge, P.O. Box 577, Crockett CA 94525.

Brueggmann, Robert, *Benicia: Portrait of an Early California Town*, San Francisco, 1980.

Snyder, John W., "Architectural Evaluation," California Department of Transportation, Sacramento, May 17, 1978.

### PART IV. PROJECT INFORMATION

As noted previously, the subject building suffered from serious structural failure as a result of slippage caused by the adjacent railroad grade cut. When structural and geologic analysis concluded the building could not be stabilized, it was vacated and proposed for demolition. Historical studies undertaken in connection with the proposed demolition concluded that the building was not an element in any listed Benicia Arsenal historic district, and that it was not individually eligible for inclusion in the National Register of Historic Places. The State Historic Preservation Officer concurred in these conclusions. However, Caltrans and the SHPO agreed that, due to the proximity of the associated Benicia Arsenal, HABS-type documentation prior to demolition would be appropriate. Because no Federal funding or approvals were involved, Section 106 requirements did not apply, including prior consultation with HABS to determine level of recordation; this a donated recording project.

Following photographic recordation, the building was demolished on August 25, 1986.

**Historian:** John W. Snyder  
Chief, Architectural and Historic Studies  
California Department of Transportation  
Office of Environmental Analysis  
1120 N Street  
Sacramento CA 95814  
May 15, 1989